

OPERATING SUMMARY

TD227
F47
W38
1974
MOE

c.1
a aa

TOWN OF

FERGUS

WATER POLLUTION CONTROL PLANT

LABORATORY OF WATER QUALITY
MINISTRY OF THE ENVIRONMENT

LIBRARY COPY

OCT 20 1975

MINISTRY OF THE
ENVIRONMENT

LAB

1974



Ontario

MINISTRY OF THE ENVIRONMENT

MINISTER
Honourable William G. Newman

DEPUTY MINISTER
E. Biggs

ASSISTANT DEPUTY MINISTER
REGIONAL OPERATIONS
J. Barr

REGIONAL OPERATIONS DIVISION

DIRECTOR, WEST-CENTRAL REGION
C. Macfarlane

MANAGER, UTILITY OPERATIONS
B. Hansler



Environment Ontario
Laboratory Library
125 Resources Rd.
Etobicoke, Ontario M9P 3V6
Canada

FERGUS
WATER POLLUTION CONTROL PLANT

operated for
THE TOWN OF FERGUS
by the
MINISTRY OF THE ENVIRONMENT

1974 ANNUAL OPERATING SUMMARY

prepared by
Plant Performance Unit
TECHNICAL SERVICES BRANCH
T. Cross, Director

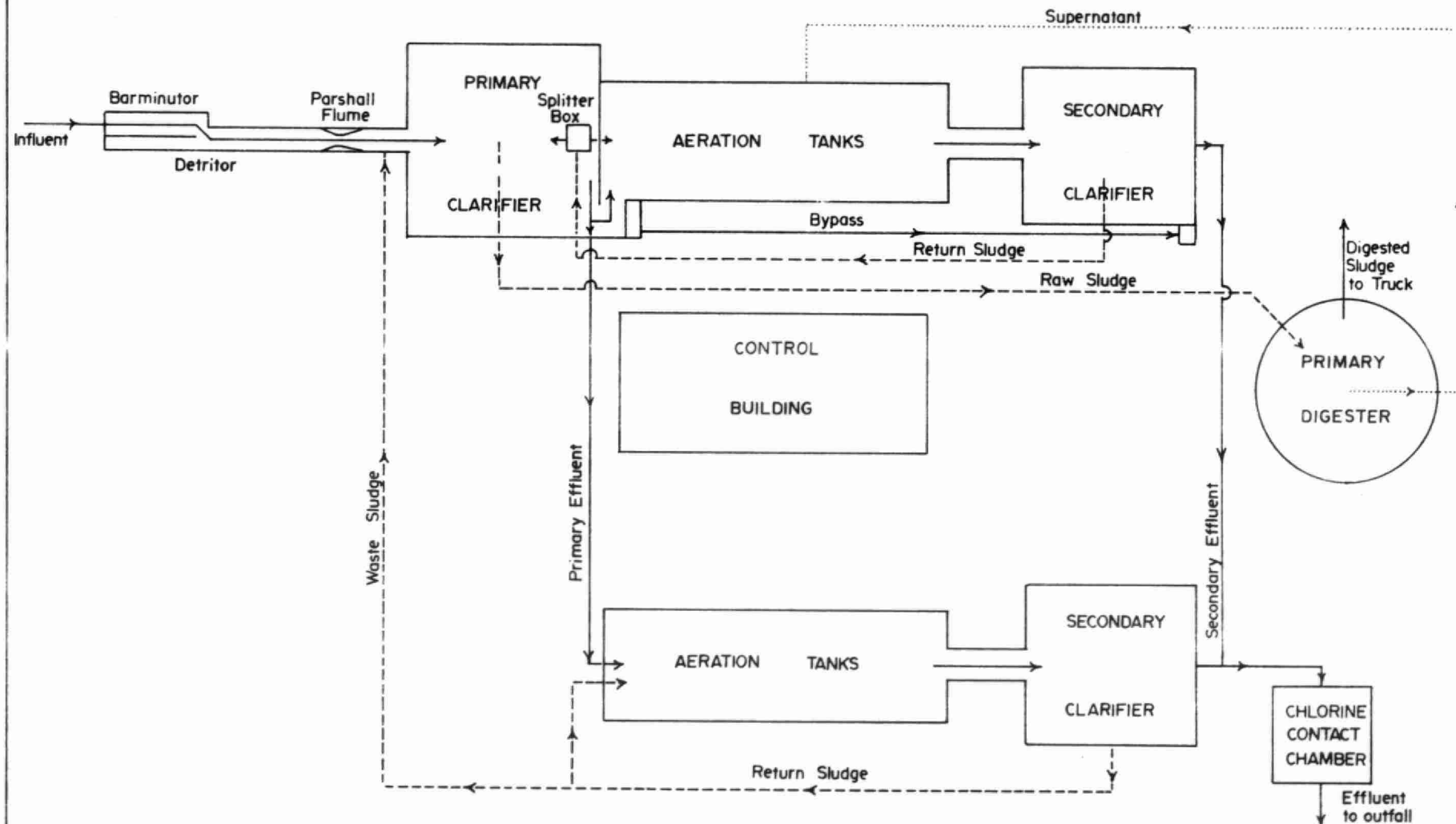
TD
227
F47
W38
1974
MOE
astc

CONTENTS

Title Page	. . . . .	1
Flow Diagram	. . . . .	4
Design Data	. . . . .	5
Operating Cost	. . . . .	6
Process Data	. . . . .	8

TOWN OF FERGUS

WATER POLLUTION CONTROL PLANT



DESIGN DATA

PROJECT Town of Fergus WPCP
PROJECT No 2-0023-58
TREATMENT Activated Sludge
DESIGN FLOW 1.1 mgd
BOD Raw Sewage 200 mg/l
Removal 90%
SS Raw Sewage 200 mg/l
Removal 90%

PRIMARY TREATMENT

GRIT REMOVAL:

Type: Dorr-Oliver, Type T
Detritor

COMMINUTION:

Type: Barminutor
Size: Model B (18")

PRIMARY SEDIMENTATION:

Type: Dorr-Oliver
Size: One 40' x 40' x 9' swd
Volume: 90,000 I. Gal.
Detention: 2.0 hours
Loading: Surface: 687 gal/ft²/day

SECONDARY TREATMENT

AERATION TANKS:

Type: Mechanical Single Pass
Size 1, 72' x 24' x 10.7' swd
1, 72' x 24' x 12'2" swd
Volume (total) 269,000 I. Gal.
Retention: (total) 5.9 hours

Aerators - Ames Crosta

SECONDARY SEDIMENTATION:

Type: Dorr-Oliver
Size: Two, 35' x 35' x 9' swd
Volume (total) 137,000 I. Gal.
Detention: 3 hours
Loading - Surface 450 gal/ft²/day

CHLORINATION:

Type: BIF Model EVS
Size: 200 lb/day

CHLORINE CONTACT CHAMBER:

Size: 40' x 15' x 7' swd
Volume: 26,000 I. Gal.
Detention: 34 min.

OUTFALL - to Grand River

SLUDGE HANDLING

Digestion System

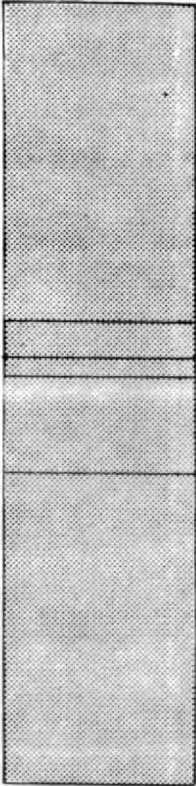
Type: Single stage, with floating cover
and one Dorr draft tube mixer
Size: 35' dia x 22' swd (22,700 cu ft or
141,000 gal)
Loading: 1.40 lb/ft³/mo

Drying Beds

- total area, 7,200 sq ft
(discontinued use in 1964)

ANNUAL COSTS

1974 OPERATING COSTS



● SALARIES & WAGES	39 %
● EMPLOYEE BENEFITS	5 %
● TRANSPORTATION & COMMUNICATIONS	2 %
● SERVICES	13 %
● SUPPLIES & EQUIPMENT	41 %
● AQUISITION/CONSTRUCTION OF PHYSICAL ASSETS	0 %
● TRANSFER PAYMENTS	0 %
● OTHER TRANSACTIONS	0 %

YEARLY OPERATING COSTS

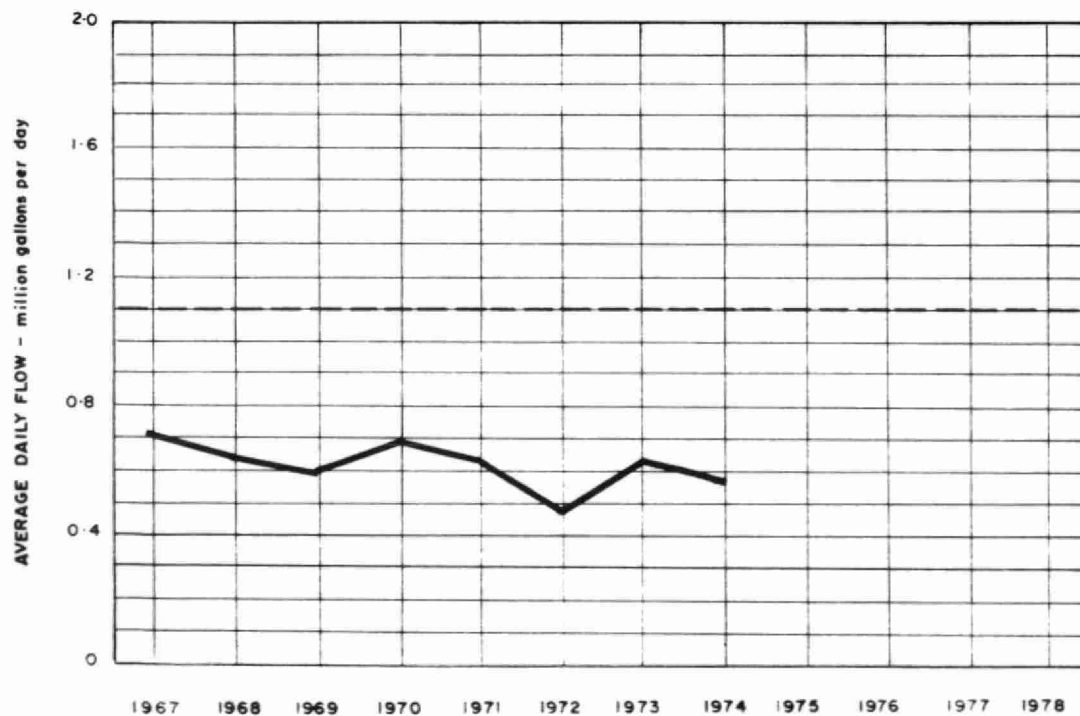
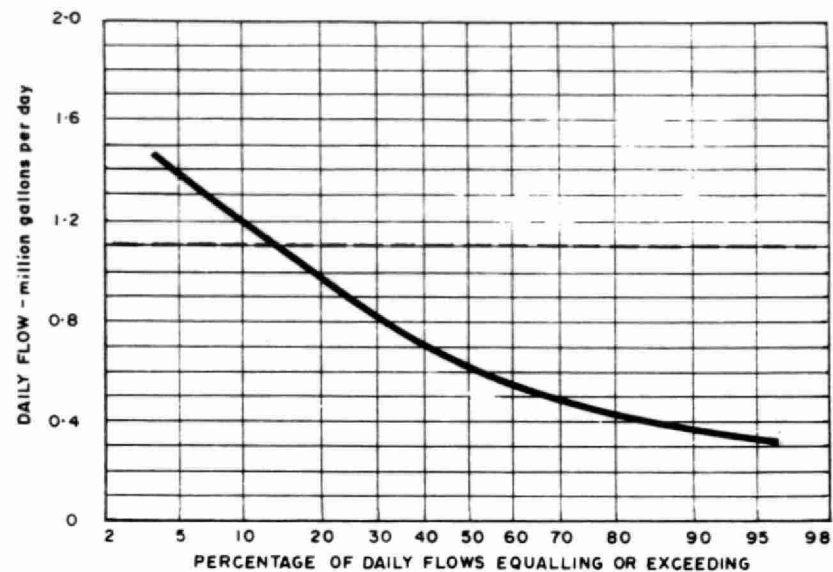
YEAR	SEWAGE TREATED in million gallons	TOTAL OPERATING COSTS	UNIT COSTS	
			\$/M.G.	¢/lb BOD
1969	235	25,449	108	10
1970	254	24,078	95	13
1971	230	24,546	106	9
1972		30,939		
1973	229	35,681	156	17
1974	217	48,910	225	13

OPERATING EXPENDITURES

Regular Staff	\$ 17612	\$
Casual (Unclassified) Staff	1551	
TOTAL SALARIES AND WAGES		19163
TOTAL EMPLOYEE BENEFITS		2580
TOTAL TRANSPORTATION AND COMMUNICATIONS		969
Insurance	739	
Sludge Haulage	3900	
Repairs and Maintenance	1289	
Other Services	262	
TOTAL SERVICES		6190
Machinery and Equipment	8403	
Chemicals	4897	
Utilities	4546	
Other Supplies and Equipment		
TOTAL SUPPLIES AND EQUIPMENT		20008
TOTAL AQUISITION/CONSTRUCTION OF PHYSICAL ASSETS		
TOTAL TRANSFER PAYMENTS		
OTHER TRANSACTIONS		
GRAND TOTAL	GRAND TOTAL	\$ 48910

PROCESS DATA

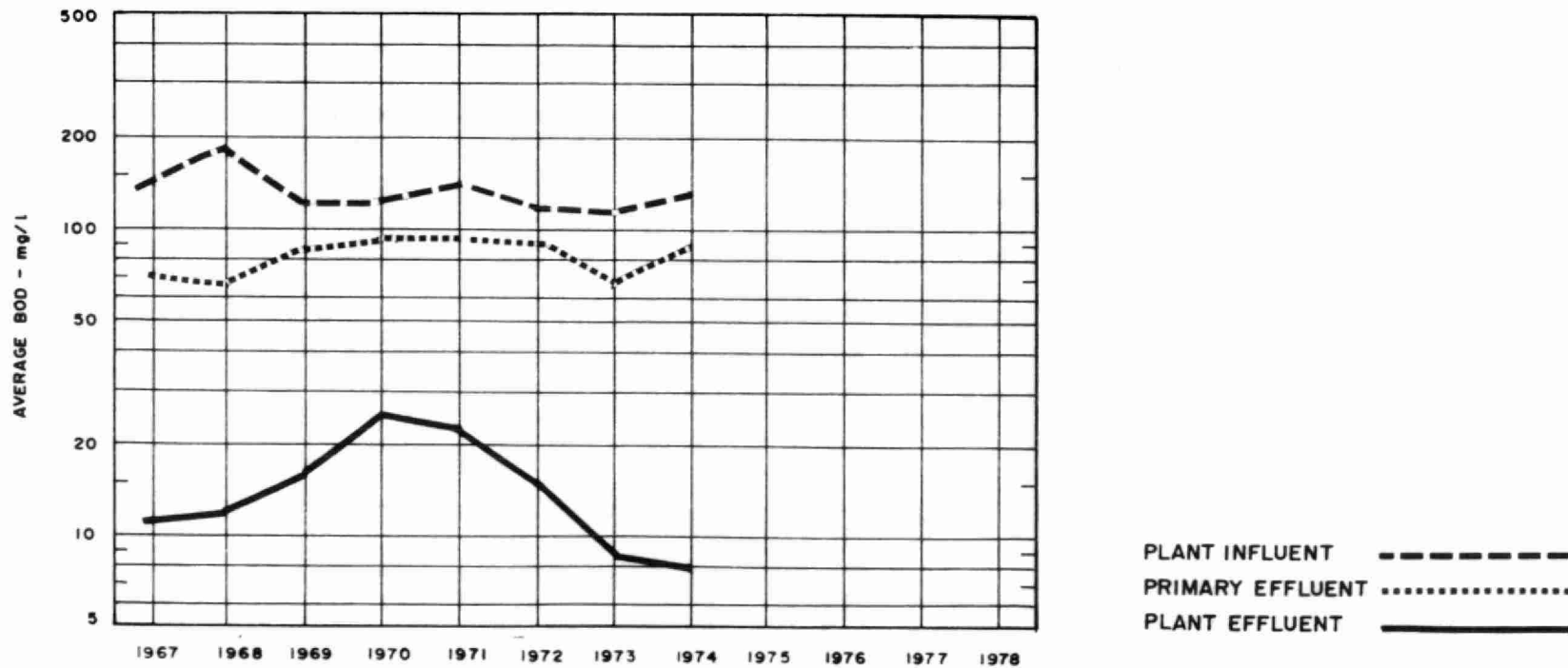
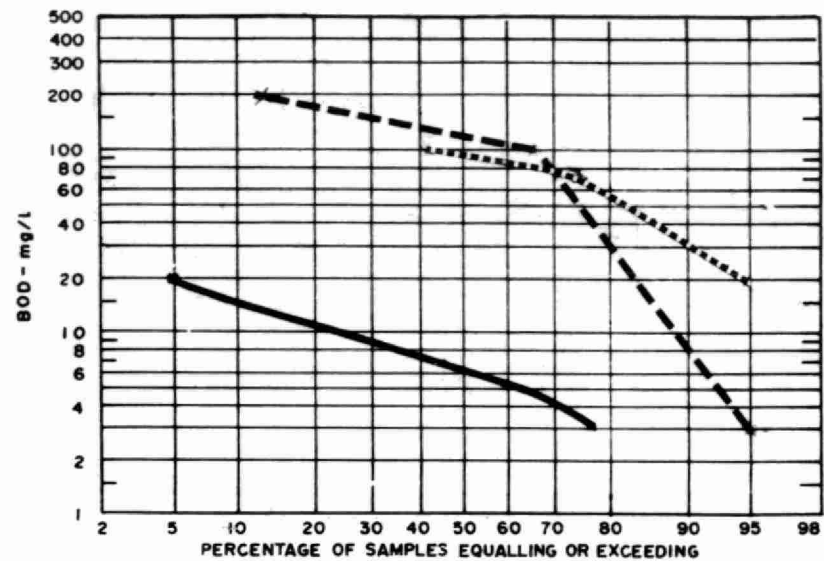
FLOWS



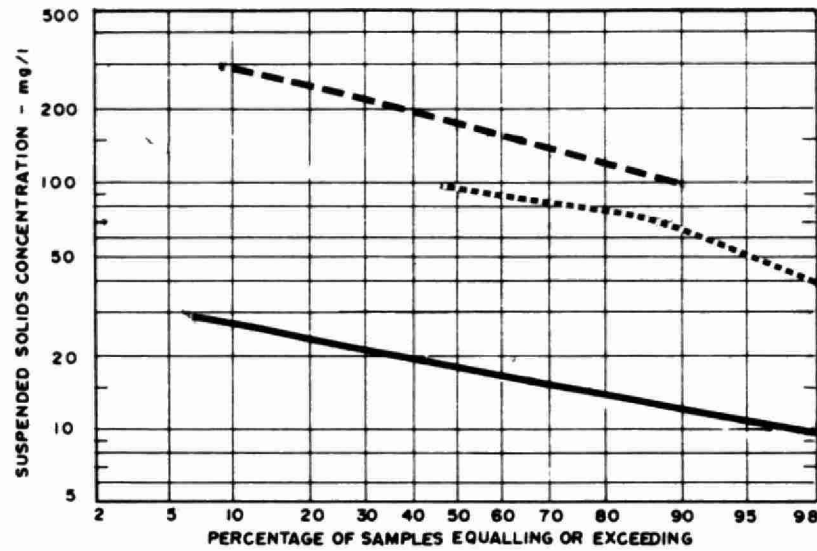
PLANT PERFORMANCE

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
	million gallons	mil. gal	mgd	mg/l	mg/l	%	10 ³ pounds	mg/l	mg/l	%	10 ³ pounds	mg/l P	mg/l P
JAN	19.65	.63	1.83	170	18	89	30	146	19	87	25	7.6	5.0
FEB	16.00	.57	1.72	110	12	89	16	160	18	89	23	5.9	2.5
MAR	28.44	.92	2.02	63	11	83	15	126	18	86	31	4.6	2.3
APR	29.84	.99	1.48	69	13	81	17	100	15	85	25	4.0	1.6
MAY	30.85	1.00	2.14	70	5	93	20	136	14	90	38	5.3	2.6
JUNE	15.74	.52	1.02	125	3	98	19	232	17	92	34	6.6	4.4
JULY	12.89	.42	.52	210	4	98	27	210	16	92	25	11.9	4.5
AUG	11.78	.38	.75	210	3	99	24	400	19	95	45	12.0	.3
SEPT	11.44	.38	1.10	118	3	97	13	273	19	97	29	13.0	1.6
OCT	11.99	.39	.98	185	4	98	22	236	19	92	26	10.2	.5
NOV	14.75	.49	.77	42	3	93	6	176	17	90	23	3.8	.7
DEC	13.74	.44	.55	150	10	93	19	202	18	91	25	8.3	.6
TOTAL	217.11	-	-	-	-	-	260	-	-	-	373	-	-
AVG.		.59	MAXIMUM 2.14	128	8	94	22	189	17	91	31	6.3	2.5
No. of Samples	-	-	-	21	37	-	-	67	272	-	-	20	35

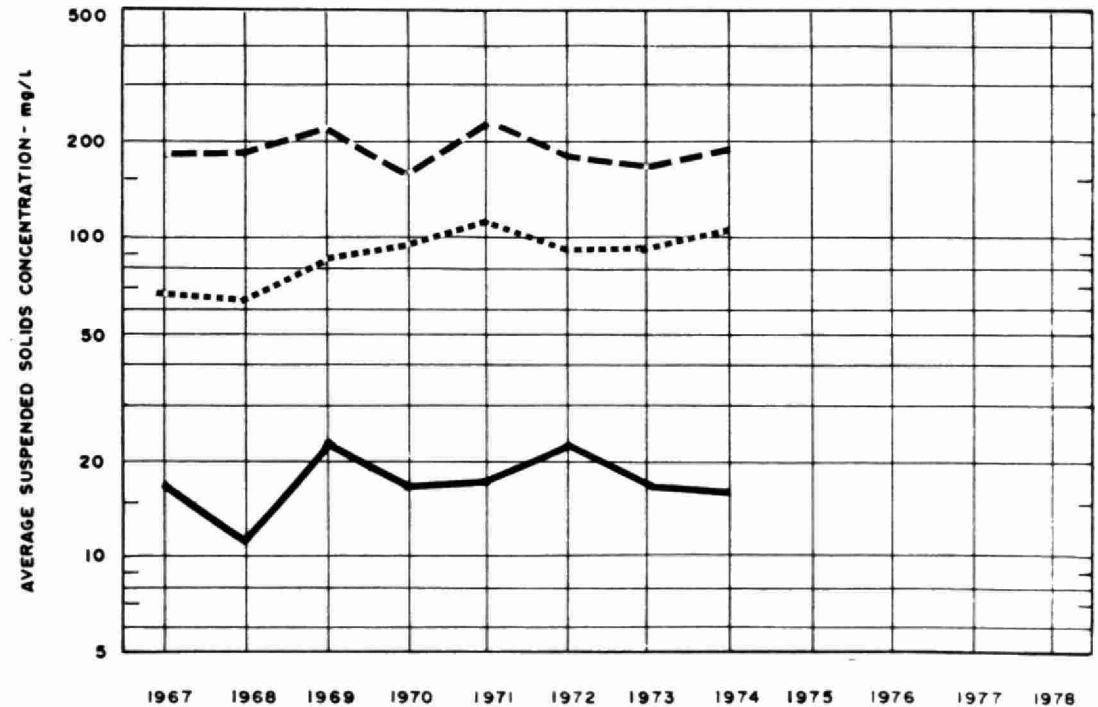
BIOCHEMICAL OXYGEN DEMAND



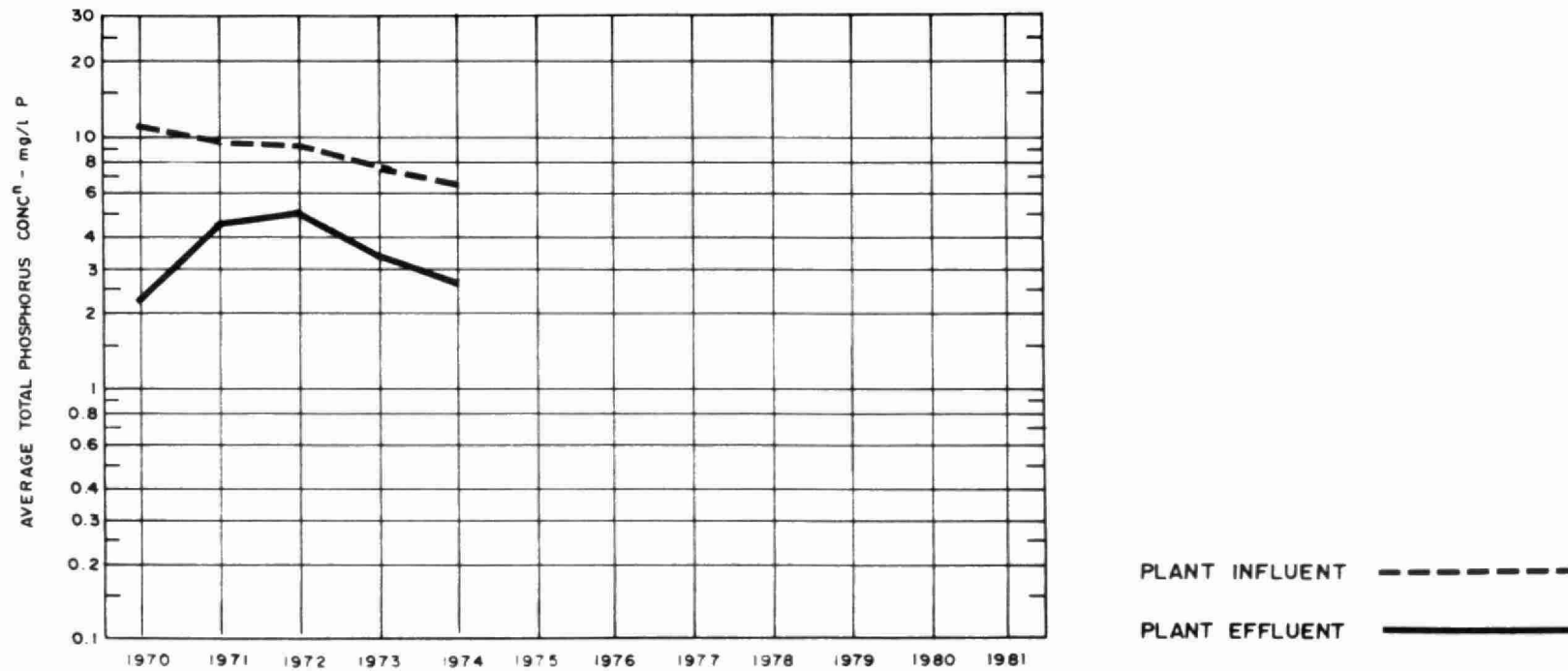
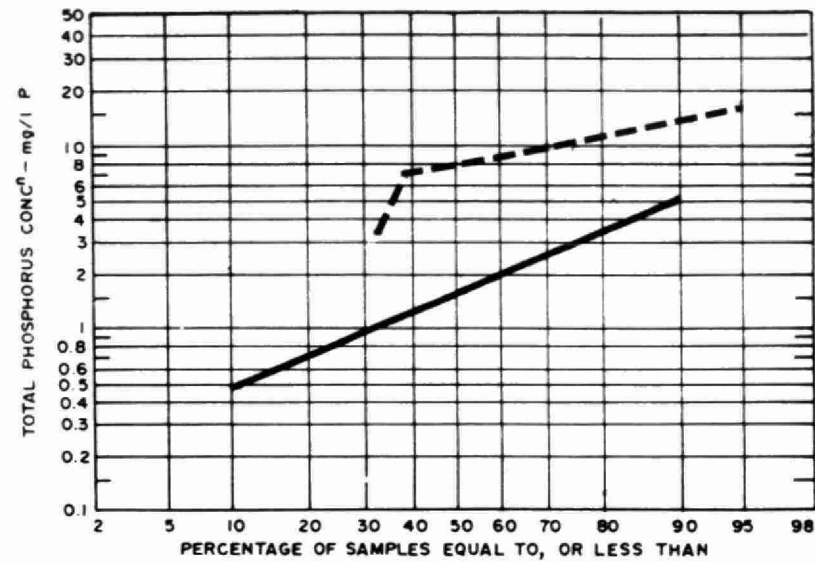
SUSPENDED SOLIDS



PLANT INFLUENT **-----**
 PRIMARY EFFLUENT **.....**
 PLANT EFFLUENT **————**

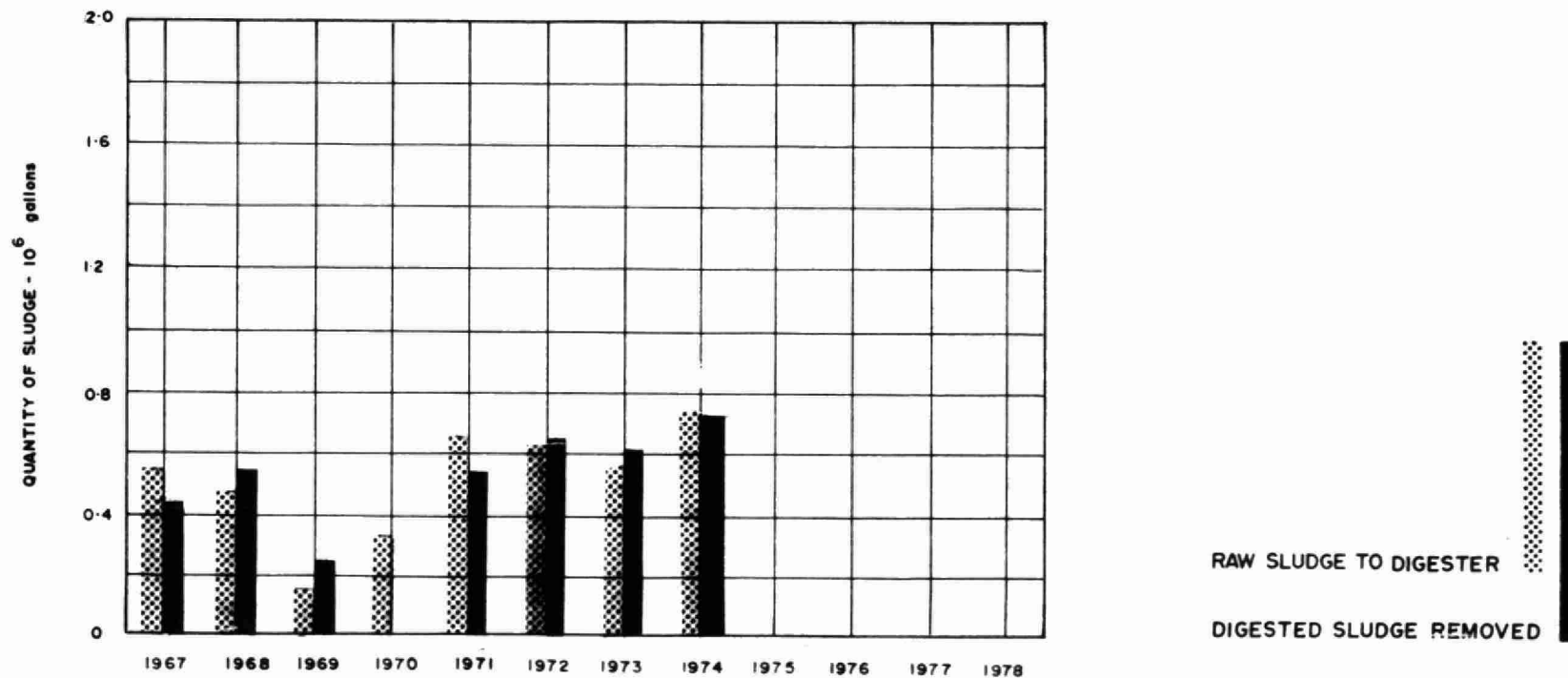
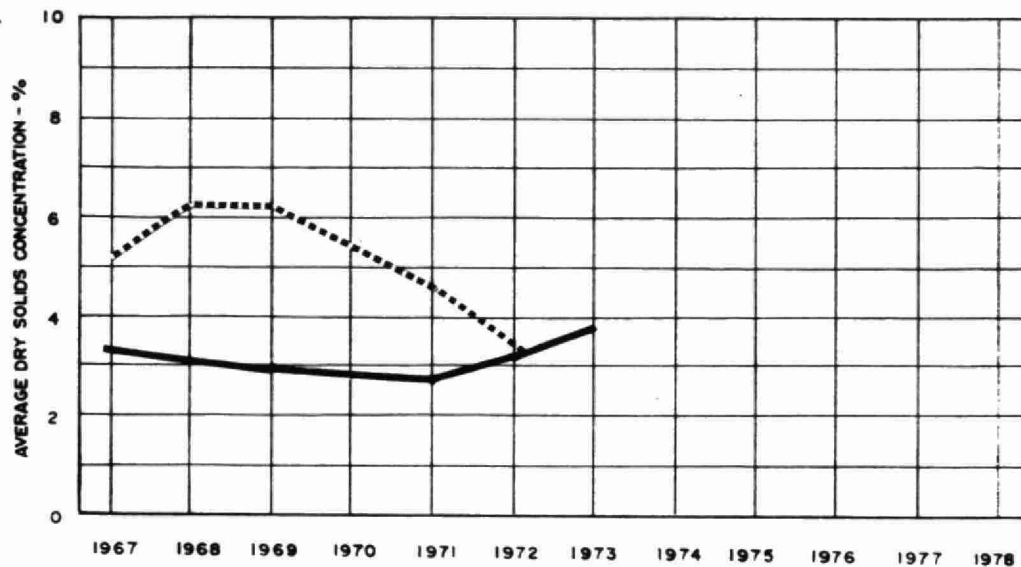


PHOSPHORUS



DIGESTION

RAW SLUDGE
DIGESTED SLUDGE ———



TREATMENT DATA

MONTH	GRIT	CHLORINATION		PRIMARY EFFLUENT		AERATION			SLUDGE DIGESTION and DISPOSAL							
	QUANTITY REMOVED cubic feet	CL ₂ USED 10 ³ pounds	AVG. DOSE mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	MLSS CONC mg/l	F/M day ⁻¹	AIR 1000 ft ³ lb BOD	RAW SLUDGE			DIGESTED SLUDGE			SUPER- NATANT T. S. %	AMOUNT HAULED cubic yards
									QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOL. SOLIDS %	QUANTITY 10 ³ gallons	TOTAL SOLIDS %	VOL. SOLIDS %		
JAN	10	707	3.6	108	81	2600	.09		35.1			40.4				240
FEB	11	648	4.0	100	92	2400	.08		48.9			40.4				240
MAR	10	707	2.5	70	72	2800	.08		48.5			60.7				360
APR	48	706	2.4	49	58	2800	.06		40.0			47.2				280
MAY	13	827	2.7	53	79	2400	.08		35.8			64.0				380
JUNE	17	757	4.8	75	98	2600	.05		42.1			40.4				240
JULY	25	811	6.3	90	102	2800	.05		64.2			66.9				397
AUG	38	673	6.6	100	95	3100	.05		49.3			40.4				240
SEPT	30	704	6.2	62	118	3200	.03		57.2			60.7				360
OCT	53	649	5.4	125	198	3600	.05		52.2			66.0				392
NOV	37	615	4.2	100	117	3600	.05		52.1			20.2				120
DEC	33	654	4.8	125	175	4600	.04		51.1			24.9				148
TOTAL	325	8459	-	-	-	-	-	-	576.5	-	-	572.3	-	-	-	3397
AVG.	1.5 cu. ft./mil gal	705	3.9	87	105	3000	.06		48.0			47.7				283



Date Due

Environment Ontario



Laboratory Library
125 Resources Rd.
Etobicoke, Ontario M9P 3V6
Canada

PRINTED IN CANADA